



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/721,326	11/22/2000	Michael J. Barrett	A0602/7002	7238
37462	7590	10/18/2006	EXAMINER: MARCELO, MELVIN C	
LOWRIE, LANDO & ANASTASI RIVERFRONT OFFICE ONE MAIN STREET, ELEVENTH FLOOR CAMBRIDGE, MA 02142			ART UNIT 2616	PAPER NUMBER

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/721,326

Applicant(s)

BARRETT ET AL.

Examiner

Melvin Marcelo

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) See Continuation Sheet is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☒ Claim(s) 153 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 November 0200 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continuation of Disposition of Claims: Claims pending in the application are 2,4-7,10,13-16,18-22,24,27-31,35,40-47,63-86,88,89,102,103,108,117-120,122-137,143-145 and 148-153 .

Continuation of Disposition of Claims: Claims allowed are {2,4-7,10,13,14,49-57,122-124,133,148},{15,16,18-22,24,27-29,58-60,63-67,125,126}, 61,103,127, {30,31,35,40-47,129-132 and 149} and {68-86,88,89,135-137 and 152}.

Continuation of Disposition of Claims: Claims rejected are and {151,102,108,117-120, 128 and 143-145}.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 8-2-2006 have been fully considered but they are not persuasive. Applicant argues the following in the Remarks, page 25:

... Shyu does not disclose or suggest that the receiving station is "adapted to monitor the plurality of passenger vehicles and signals along the vehicular pathways," as is recited in Applicant's claim. Shyu discloses that the receiving station can receive traffic information from the vehicles, process the information and provide navigation data to those vehicles equipped with receivers. However, there is no mention of the receiving station monitoring the vehicles or monitoring the signals along the pathways, as is recited in Applicant's claim.

However, Shyu expressly teaches that "[I]n practice, the traffic information can also be received through a receiving station, similar to the central computer system and transceiver posts mentioned before, then it is processed to generate required information, including the positions of every vehicle, traffic regulations, record of collecting tolls, query for those who need it, and so on" (column 6, lines 32-38). Since the receiving station has information including the positions of every vehicle, then the receiving station can reasonably be interpreted as monitoring the plurality of vehicles as to their locations along vehicular pathways. With respect to "monitoring the signals," the monitoring of the vehicles is represented by the traffic information signals transmitted by the vehicles and received by the receiving station. Thus, the monitoring of vehicles inherently includes the monitoring of the "traffic information" signals transmitted by these vehicles along the pathway associated with the receiving station. The "traffic information" signals include information of driving speed (column 1, lines 58-62), and position and direction of vehicle (110 in Figure 5).

With respect to FDMA, it is generally known to use different frequency channels for different devices within range of each other in order to prevent the occurrence of interference

Art Unit: 2616

due to the use of the same frequency channel. Thus, the two separate transmitter/receiver units transmitting on different frequency channels would have been obvious since each transmitter/receiver unit represents a different user.

Claim Objections

2. Claim 14 is objected to because of the following informalities: In line 2, "the is" should be --there is--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 151, 102, 117, 119, 120, 144 and 145 rejected under 35 U.S.C. 102(b) as being anticipated by Shyu (US 5,428,544 A).

The Shyu patent was published earlier than applicant's priority documents. With respect to the claims below, references to the prior art appear in parenthesis.

Claims

151 . *A vehicular communication network comprising:*

a plurality of passenger vehicles located on vehicular pathways and being adapted to transmit and receive signals to and from one another (Shyu, Figure 2, wherein vehicles on the pathways transmit and receive signals to and from one another, column 1, lines 58-66); and

Art Unit: 2616

a pathway station adapted to monitor the plurality of passenger vehicles and signals along the vehicular pathways (Alternative embodiment includes a receiving station which monitors the vehicles in order to determine the positions of every vehicle, column 6, lines 30-40);

wherein the plurality of passenger vehicles includes:

a first passenger vehicle equipped with a first transmitter/receiver unit adapted to transmit a first information signal containing information (Figure 2 and column 2, line 58 to column 3, line 2, vehicle "c" is the first vehicle);

a second passenger vehicle equipped with a second transmitter/receiver unit adapted to receive the first information signal from the first transmitter/receiver unit and to retransmit at least a portion of the first information signal (Vehicle "d" is the second vehicle, wherein a portion of the first information signal (traffic information) received is not completely retransmitted since it is processed and updated, column 3, lines 49-59 and column 4, lines 28-43); and

a third passenger vehicle equipped with a third transmitter/receiver unit adapted to receive at least the portion of the first information signal from the second transmitter/receiver unit (Vehicle "e" is the third vehicle).

102. *The vehicular communication network as claimed in claim 151, wherein the first information signal is digitally encoded with the information (Figure 3, Output Information Encoder 17, wherein the Microcomputer 1 is digital).*

117. *The vehicular communication network as claimed in claim 151, wherein the passenger vehicles are ground vehicles (Figure 1 shows vehicles on a road).*

119. *The vehicular communication network as claimed in claim 117, wherein the information includes traffic information (Column 3, lines 49-51).*

Art Unit: 2616

120. *The vehicular communication network as claimed in claim 117, wherein the information includes information regarding at least one of a heading and a position of at least one of the passenger vehicles (Figure 5, Information of Position & Direction of the Vehicle 110).*

144. *The vehicular communication network as claimed in claim 151, wherein the pathway station is adapted to monitor a position and a velocity of the plurality of passenger vehicles along the vehicular pathways (Figure 5, Information of Position & Direction of the Vehicle 110 and driving speed in column 1, lines 58-62 which is the traffic information that can be received by the receiving station in the practical implementation of the invention).*

145. *The vehicular communication network as claimed in claim 151, wherein the pathway station is adapted to transmit signals to the plurality of passenger vehicles and to receive signals from the plurality of passenger vehicles (Receiving station transmits and receives traffic information to and from vehicles, column 6, lines 30-40).*

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claim 118 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Shyu.

Shyu does not teach that the traffic information includes weather information. However, Shyu discusses the prior art, wherein information about traveling conditions are exchanged which includes both traffic and weather information (column 1, lines 36-48). A skilled artisan would have been motivated to exchange weather information among the vehicles in Shyu for the reason that fog and rain affect traffic as taught in the prior art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the

Art Unit: 2616

vehicles in Shyu to exchange information that affects traffic such as weather conditions. With respect to the claims below, references to the prior art appear in parenthesis.

Claims

118. The vehicular communication network as claimed in claim 117, wherein the information includes weather information (Shyu, fog and rain in the prior art information about traveling conditions, column 1, lines 36-48).

7. Claim 108 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shyu in view of Alanyali et al. ('On Simple Algorithms for Dynamic Load Balancing').

Shyu does not teach additional receiving stations in their system. Alanyali teaches a plurality of fixed stations in a wireless network (Figure 1 and page 230) for the purposes of load balancing, "whereby the load is allocated across resources as evenly as possible." Therefore, it would have been obvious to provide additional receiving stations which are fixed stations in Shyu for the reason that "load balancing" is a known technique used in wireless systems to distribute load among fixed stations. With respect to the claims below, references to the prior art appear in parenthesis.

Claims

108. The vehicular communication network as claimed in claim 151, further comprising an additional pathway station that assumes control of at least some of the plurality of passenger vehicles, to prevent overloading of the pathway station (Alanyali, load balancing is a known technique in wireless systems).

8. Claim 143 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shyu in view of Newton's Dictionary definition for 'FDMA'.

Shyu does not teach different frequencies for the first and second transmitter/receiver units. However, FDMA is a known technique for using multiple frequencies in a wireless network in order to permit multiple users in a finite frequency resource (see Newton's Dictionary definition for 'FDMA' on page 479). Therefore, it would have been obvious to use FDMA in Shyu for the reason that a skilled artisan would have been motivated to permit multiple vehicles to communicate simultaneously since the vehicles may be in range of each other for only a short period of time. With respect to the claims below, references to the prior art appear in parenthesis.

Claims

143. *The vehicular communication network as claimed in claim 151, wherein the first transmitter/receiver unit is adapted to re-transmit the first information signal at a first frequency, and wherein the second transmitter/receiver unit is adapted to re-transmit at least the portion of the first information signal at a second frequency (FDMA which is use of multiple frequencies is a known technique in wireless systems, Newton's Dictionary of 'FDMA', wherein different transmitters use different frequencies in order to prevent interference from occurring as a result of using the same frequency).*

9. Claim 128 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shyu and Farmer et al. (US 6,085,151 A) and further in view of Newton's Dictionary definition of 'FDMA'.

Shyu does not explicitly teach a directional multibeam antenna, but appears to suggest an antenna capable of transmitting and receiving from certain directions (column 2, lines 51-57). However, Farmer teaches that a directional multibeam antenna is used in vehicles since objects can approach the vehicle from a number of directions (column 6, line 54 to column 7, line 5).

Art Unit: 2616

Therefore, it would have been obvious to use a directional multibeam antenna in Shyu for the reason that vehicles can approach each other from numerous directions.

Shyu does not teach different frequencies for the first and second transmitter/receiver units. However, FDMA is a known technique for using multiple frequencies in a wireless network in order to permit multiple users in a finite frequency resource (see Newton's Dictionary definition for 'FDMA' on page 479). Therefore, it would have been obvious to use FDMA in Shyu for the reason that a skilled artisan would have been motivated to permit multiple vehicles to communicate simultaneously since the vehicles may be in range of each other for only a short period of time. With respect to the claims below, references to the prior art appear in parenthesis.

Claims

128. *A system that provides information to and from a second passenger vehicle (Shyu, Figure 2), comprising:*

a transmitter unit, located at an information source, that transmits the information signal (Vehicle "c" transmits traffic information signal, column 2, line 58 to column 3, line 2);

a first transmitter/receiver unit located on a first passenger vehicle that is located on a pathway within a signal coverage area of the information source, that receives the information signal and that re-transmits the information signal (Vehicle "d" retransmit the traffic information signal);

a directional multibeam antenna, coupled to the first transmitter/receiver unit, that re-transmits the information signal in a plurality of directions, at least one of the plurality of directions being along the pathway (Farmer teaches using a directional multibeam antenna since objects can approach a vehicle from numerous directions (see Figure 1));

Art Unit: 2616

an additional transmitter/receiver unit located on a third passenger vehicle, that receives the information signal from the first transmitter/receiver unit and re-transmits the information signal to provide the information signal between the source and the second passenger vehicle (Vehicle "d" is an additional transmitter/receiver that retransmits the traffic information signal to vehicle "e");

an additional directional antenna coupled to the additional transmitter/receiver unit that re-transmits the information signal along the pathway (Antenna for Transmitter 7 in Figure 3 must inherently be directional since it has to point to a certain directions, column 2, lines 51-57); and

a receiver, located on the second passenger vehicle that is located on the pathway, the receiver adapted to receive the information signal from the additional transmitter/receiver unit; (Vehicle "e" is the second passenger vehicle on the pathway)

wherein the first transmitter/receiver unit is adapted to re-transmit the information signal at a first frequency, and wherein the additional transmitter/receiver unit is adapted to re-transmit the information signal at a second frequency (FDMA which is use of multiple frequencies is a known technique in wireless systems, Newton's Dictionary of 'FDMA', wherein different transmitters use different frequencies in order to prevent interference from occurring as a result of using the same frequency).

Allowable Subject Matter

10. Claims {2,4-7,10,13,14,49-57,122-124,133,148}, {15,16,18-22,24,27-29,58-60,63-66}, {127,67,125,126}, {30,31,35,40-47,129-132 and 149}, 61, 103, 127 and {68-86,88,89,135-137 and 152} are allowed.

Art Unit: 2616

11. Claim 153 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

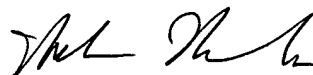
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin Marcelo whose telephone number is 571-272-3125. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2616

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Melvin Marcelo', is positioned above the printed name.

Melvin Marcelo
Primary Examiner
Art Unit 2616

October 16, 2006